

## Volume 182 No 1



Opening of the Link light rail 1 Line southern extension to Federal Way marks another step in Sound Transit's long running programme to improve rail connectivity across the Puget Sound region, which is on course to add almost 100 route-km by 2040. This year should see completion of the 2 Line connection to central Seattle, while work has started on a northern extension to Lynnwood (p38).

Photo: Sound Transit

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## ASSET MAINTENANCE

- Cracking the nut of rising maintenance costs** An international benchmarking exercise by management consultancy Arthur D Little has found that railways across Europe are facing a maintenance cost crunch, with strong leadership needed to address the problem
- Creating a 'living replica' of a challenging tunnel** Network Rail and Bentley Systems have worked together to create a digital twin of the 7 km Severn Tunnel, filling in a gap in the infrastructure manager's asset data on its Great Western Main Line
- Using data to make better decisions** Fouled ballast results in track geometry defects and reduces the effectiveness of tamping. Modern analysis methods such as ground penetrating radar enable ballast cleaning machines to be deployed in a targeted manner
- Drones lead RFI's monitoring suite expansion** Italian infrastructure manager RFI is expanding its ability to inspect and intervene on its network through autonomous and data-driven technology

- Investigating degradation in tight curves** Urban rail systems frequently have tight curvature, leading to accelerated wear of the rail head and long-term challenges in maintaining the track gauge. An investigation of wear on Monterrey Metro Line 1 emphasised the importance of considering asset life cycle in rail profile design and maintenance strategies
- High demand for component maintenance** EuCo Rail opened a component maintenance centre at Gersthofen in mid-October and Jörg Ernst, President & CEO, explains to Benjâmin Zelki how the site will help the business target what it sees as a gap in the market

## USA

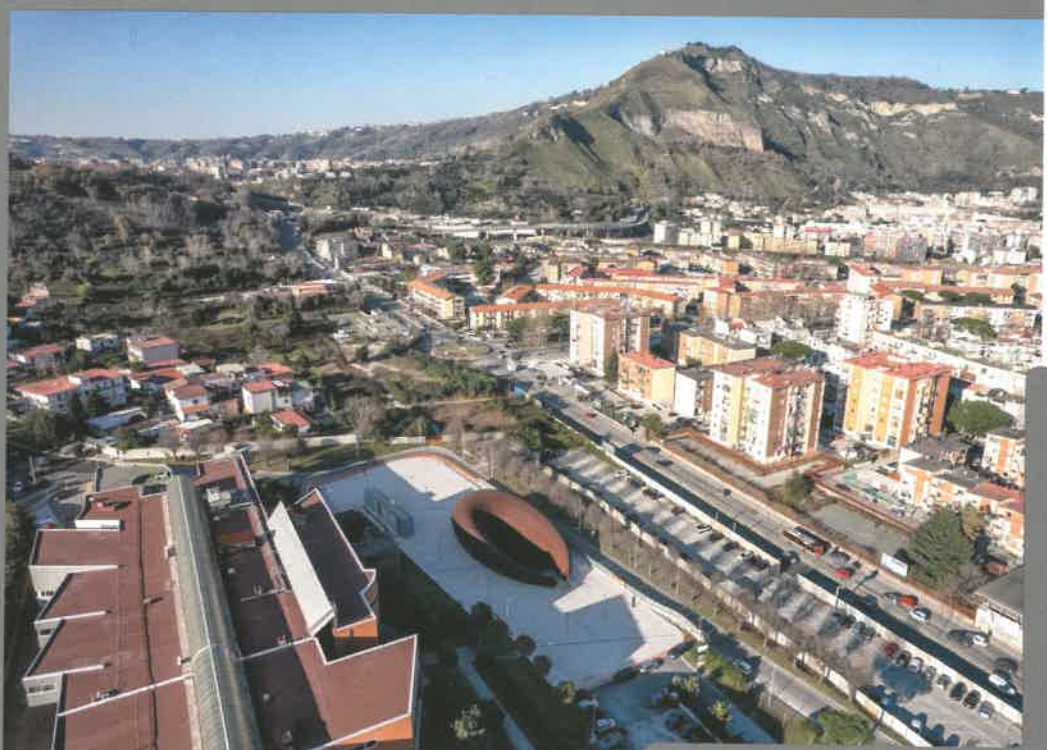
- Learning lessons from the California high speed rail programme** Having served as Northern California Regional Director for the California High Speed Rail Authority, Boris Lipkin offers a personal reflection on the lessons that planners of future rail megaprojects could learn from the scheme
- Sound planning brings Seattle's rail vision to fruition** Opening of Sound Transit's Federal Way light rail extension in December marked a further milestone in the expansion of urban and commuter rail services around Seattle. Benjâmin Zelki explains how a vision first put to local voters in 1996 has led to continuing growth

## IN FOCUS

- Deutschlandtakt vision shapes capacity planning** Development of a medium-term capacity utilisation strategy is a key building block that meets European requirements whilst supporting the roll-out of Germany's planned national regular-interval timetable over the coming decades
- MTR completes EAL platform gate retrofit** The retrofitting of Automatic Platform Gates to Hong Kong's oldest railway without any disruption to passengers marked a major milestone in MTR's network modernisation programme

## SIDETRACK & CONTACT

- Dieter; Christmas treat; Publication



An 'art station' designed by Anish Kapoor to provide a visual metaphor for the descent into the underworld is the architectural highlight of Napoli suburban Line 7, which opened on November 10. Built for EAV by Webuild, the first 1.4 km runs from an interchange with Line 5 at Soccavo to Monte Sant'Angelo; extensions to Parco San Paolo and Terracina are expected to open in 2027-29.

The €140m station at Monte Sant'Angelo was inspired by the myth of the Cumaean Sibyl, as narrated in Virgil's Aeneid. The exit serving the Napoli Federico II university campus has a 220 tonne cyclopean structure 19 m high and shaped like a mouth that envelops the escalators. A 42 tonne sculpture at the Rione Traiano exit is also designed as a mouth.

On November 26, Bozankaya delivered the first of 20 five-section 100% low-floor trams it is supplying for Napoli operator ANM under a contract signed in May 2024. The 30.5 m long bidirectional vehicle has capacity for up to 270 passengers, including 64 seated.

# COMMENT

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## A shot across the bows

A 'breach of the dam', or essential competition that keeps the supply chain on its toes? In mid-November Austrian open access operator Westbahn triggered a fierce debate about the state of the European railway supply industry by placing into service four double-deck EMUs supplied by China's CRRC, after a lengthy delay obtaining authorisation.

The operator agreed to lease the six-car 200 km/h EMUs from CRRC in December 2019, two months after it ordered 15 Kiss 3 units from Stadler under a contract for which the Chinese company had also bid. CRRC is to provide the trains under a 10-year lease, with Westbahn having the option to purchase them at any time. Developed under Project DDEM2, the EMUs are designed to be TSI-compliant. Westbahn co-CEO Marco Ramsbacher said CRRC offered quality, innovation and a fast delivery time.

That might well be the case, but in the current geopolitical climate, the move was always going to be contentious. Responding to an announcement on November 4 heralding their imminent entry into traffic, the Chamber of Labour, a statutory representative body, described the use of Chinese trains as a 'breach of the dam' that 'endangers a key Austrian industry, future jobs and the crisis resilience of the railway'.

The operator responded that this was 'factually incorrect and economically short-sighted'. Westbahn's main shareholder Hans Peter Haselsteiner complained that European suppliers took four years to deliver a train.

'We are convinced that only competition based on the highest quality can sustainably inspire passengers to travel by train', said Ramsbacher. 'This is our credo, ensuring that every journey is a noticeably pleasant travel experience. With our fleet expansion, we are creating what Austria needs right now: more capacity with excellent quality, more innovative services on the rails, and above all, attractive delivery times.'

However, it soon became clear that the controversy was not going to abate.



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Westbahn arguably fanned the flames when it issued a trenchant statement on November 7, decrying what it saw as a European 'oligopoly' dominated by a handful of rolling stock manufacturers.

'Anyone wanting to buy trains today has hardly any choice, waits for years and pays an exorbitant price dictated by the lack of competition', it said. 'New trains are scarcely available, as waiting times now stretch to many years. At the same time, prices are skyrocketing, while individual requests and innovations in features or quality are virtually impossible to implement.'

Commenting that the EU had two major manufacturers from France and Germany plus one growing supplier from Switzerland, the operator suggested that the consequences of this 'market failure' were expensive trains, a lack of innovation and long delivery times, which affected all operators and thus all passengers.

Westbahn said its four new EMUs were 'completely insignificant in the context of a total European market with thousands of vehicles'. While they would 'not revolutionise the European market', they could provide 'impetus for greater competition, innovation and future viability in the rail sector'. It felt the entry of new suppliers was 'an opportunity', as 'only through competition can shorter delivery times, technological advancements and fair prices be achieved. Political interference and market protectionism lead to stagnation — to the detriment of passengers and taxpayers. Genuine competition strengthens the European rail industry

and keeps it internationally competitive.'

European suppliers' association UNIFE commented that the use of Chinese-made rolling stock in Europe demonstrated 'the urgent need for political action and corrective measures' to preserve 'the competitiveness of our European industry in a rapidly changing economic and geopolitical world'. It believed that 'protecting our industry, our autonomy, security and our jobs' was 'of paramount importance, especially in light of unfair methods and practices employed by certain non-European competitors'.

Westbahn has hardly been subtle, yet it is a brave move; only a few weeks after the trains entered service, news reports emerged in the Nordic countries about concerns over cybersecurity related to Chinese-built buses used by Danish and Norwegian public transport operators. Nevertheless, companies like Yutong and BYD continue to make huge inroads into the market for electric cars and buses in Europe. CRRC clearly has ambitions to establish itself in the EU, potentially through a partnership with Acemil in Hungary (RG 10.24 p12).

A batch of four trains for a private operator might seem insignificant today, but it is not hard to imagine rail following other sectors in seeing a much wider uptake of Chinese technology — something bodies like UNIFE have been fearing for many years. The challenge for legacy suppliers lies perhaps in recognising that affordability and delivery times could indeed be improved.

European rail leaders might also consider whether the continent is producing enough strong businesses of its own. Years of mergers, disposals and takeovers have led to drastic consolidation among rolling stock, signalling and railway systems suppliers: Wabtec's recently completed acquisition of Frauscher Sensortechnik (p12) is but the latest example. There is no need to leave an open goal, but there are opportunities for more challengers to emerge. Perhaps that is something we will see during 2026. 🌐

“Anyone wanting to buy trains today has hardly any choice, waits for years and pays an exorbitant price”

*Westbahn statement defending its use of Chinese-built trains*

## Briefing

**VIA Rail Canada** has launched its 2026-29 accessibility plan, aimed at making its network, digital tools and workplace increasingly inclusive. Chair Jonathan Goldbloom said the plan would ensure 'that inclusive design principles are built into every major decision we make, whether related to digital services or fleet renewal.'

**EIB** announced on November 20 that it would provide a loan of €1.7bn to support construction of the final 93 km segment of the high speed line between Madrid and the French border at Irún/Hendaye, southwest of Miranda de Ebro. A €325m first tranche was expected to be finalised shortly.

The government of **New Zealand** has confirmed that two rail-equipped replacement ferries have been ordered for the Cook Strait *Interislander* service, and agreed the associated landside works at Picton and Wellington. Under a NZ\$596m fixed price contract with Guangzhou Shipyard International, the two vessels are due to enter service in 2029.

French development agency **AFD** has signed an MoU to support South Africa's **Transnet** group in its transition towards net zero emissions. A proposed €300m sustainability-linked loan would support the rehabilitation of 550 km of railway and the modernisation of port infrastructure.

The **Office of Rail & Road** has published streamlined guidance designed to make third party investment in rail infrastructure easier. The Investment Pathway document aims to help investors navigating the UK regulatory framework to understand their obligations and opportunities.

Dutch infrastructure manager **ProRail** has switched its passenger information screens at stations from a light to a dark background, after studies found this would make them more readable for more people, as well as being more energy-efficient. Several designs were tested in collaboration with groups for people with visual impairments.

## Melbourne tunnel opens

## AUSTRALIA

Limited revenue services started running through Melbourne's 9 km Metro Tunnel with a ceremony on November 30, attended by Premier of the State of Victoria Jacinta Allan and state Minister for Transport Infrastructure Gabrielle Williams.

The cross-city tunnel serves five new underground stations, at Arden, Parkville, State Library, Town Hall and Anzac. It is used by

trains linking the 1600 mm gauge Sunbury line in the northwest to the Cranbourne and Pakenham lines in the southeast. Services are initially running every 20 min between Westall and West Footscray from 10.00 to 15.00 on weekdays and from 10.00 to 19.00 at weekends, with some weekend services extended to East Pakenham and Sunbury.

A full opening is scheduled for February 1, when all Sunbury and

Cranbourne/Pakenham services will be diverted through the tunnel, as part of a network-wide timetable change branded the Big Switch (RG 11.25 p34).

Announcing that free travel would be offered at weekends until February 1, Williams said this was 'our way of saying thanks to everyone for their patience while we built the Metro Tunnel and to celebrate this huge moment in the history of our state.'

## Freight sector demands attention

## EUROPE

The European Rail Freight Association has called for the sector to get the same strategic approach and level of attention as high speed rail, pointing out that the European Commission's recent proposals to accelerate the development of a pan-European high speed rail network 'barely mentioned' freight.

'Issues faced by high speed [rail] and rail freight are closely interlinked and should not be addressed in a silo approach, but rather with equal importance', ERFA President Dirk Stahl emphasised on November 13. 'For instance, removing national rules, financing ERTMS and issuing vehicle authorisation in an efficient way thanks to an adequately funded

European Railway Agency will benefit high speed and rail freight.'

The association noted that the Commission's plan published on November 5 only mentioned freight directly when referring to the additional capacity that high speed lines would free up on parallel conventional lines, and in the context of the Capacity Regulation intended to help optimise cross-border train path allocation.

While recognising that these topics were important, ERFA said it wanted to 'make sure the voice of private and independent rail freight companies is being heard.'

## Tazara revitalisation launched

## AFRICA

A US\$1.4bn project to revitalise the 1860 km Tanzania - Zambia Railway was officially launched on November 20, during a visit by Chinese Premier Li Qiang.

Li joined Zambia's President Hakainde Hichilema and Tanzania's Vice-President Emmanuel



John Nchimbi to unveil a plaque at Mulungushi International Conference Centre in Lusaka, while Tazara announced the start of 'boots on the

agreement covering a 30-year concession and Chinese government support was signed in Beijing on September 29.'

ground' works in Kapiri Mposhi.

The 1067 mm gauge line from Dar es Salaam in Tanzania to Kapiri Mposhi in Zambia was financed by China and built by China Civil Engineering Construction Corp in the 1970s. An MoU to revitalise the line was signed by the three countries' heads of state in Beijing in September 2024, and a further

## Shareholders approve merger

## USA

Shareholders of both companies have approved Union Pacific's planned acquisition of Norfolk Southern (RG 9.25 p6). UP reported on November 14 that 99.5% of votes cast by its shareholders had been in favour of issuing new common stock in connection with the deal, while Norfolk Southern

Corp said nearly 99% of its shares cast were in favour. The transaction is expected to close by early 2027, subject to STB approval.

NS shareholders would receive one UP common share and \$88-82 in cash for each NS share. This represents an implied total enterprise value of \$85bn, and equates to a 25% premium on the NS share value in the month before rumours of

the acquisition was emerged.

'We appreciate our shareholders' support in reaching this important milestone on our path to building America's first coast-to-coast railroad', said UP CEO Jim Vena. NS President & CEO Mark George said the deal would combine 'complementary networks and capabilities to unlock a multiplier effect for benefits to all stakeholders.'

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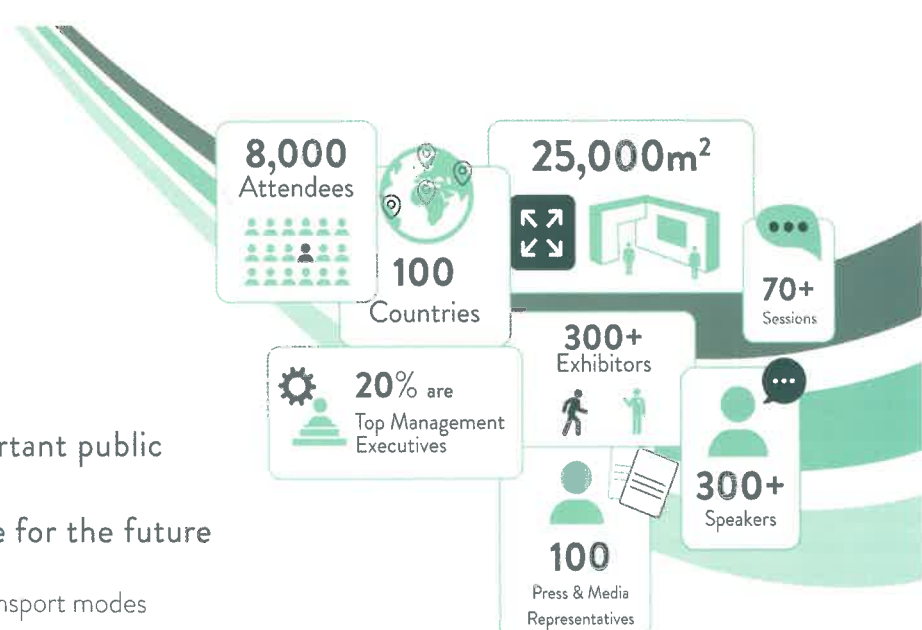


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# Enterprise fleet renewal agreed

## EUROPE

Iarnród Éireann and Northern Ireland's Translink have selected Stadler to supply trainsets to replace loco-hauled rolling stock on the cross-border Dublin – Belfast *Enterprise* service.

The award process was delayed by a legal challenge from CAF, but on November 26 the High Court in Dublin noted the time-critical

importance of securing EU funding and accepted that there was an urgent need to address emissions and improve accessibility.


The joint order covers the supply of eight electro-diesel Flirt trainsets, which will be capable of operating on the 1.5 kV DC electrification around Dublin, and in diesel mode elsewhere. Onboard traction batteries will be capable of powering the trains

for short distances; these are expected to be used at Belfast's Grand Central station and York Road depot where the fleet will be maintained.

Two diesel engines will be installed in one driving vehicle, avoiding the use of underfloor engines. There will be eight traction motors powering four bogies, two under intermediate vehicles and two located under the other

non-articulated driving vehicle.

The design of the power car will allow for replacement of the diesel engines and fuel tank by pantographs and a transformer in the event of the Northern Irish network being electrified at 25 kV 50 Hz.


There is a separate 15-year service and support maintenance agreement, which can be extended by a further 15 years. 

## Ouigo expansion

### FRANCE

SNCF has unveiled a further expansion of its Ouigo low-cost passenger operation, including a service linking Lyon with Bordeaux. Presenting its plans at Paris-Lyon station on November 27, the operator said it expected to achieve a record Ouigo ridership of 25 million passengers in 2025. It reiterated its goal for Ouigo to capture 30% of the French high speed rail market by 2030, thanks to a 30% increase in passenger volumes. The Ouigo TGV fleet is expected to reach its full allocation of 50 trains by the end of 2027.

The December timetable change was due to see the launch of a daily Paris – Hendaye service, followed by a third pair of Paris – Rennes trains during 2026. SNCF is also looking at increasing the Paris – Strasbourg Ouigo service. Alain Krakovitch, head of the TGV-Intercités business unit, said the operator was considering a Ouigo option between Paris and Lille, where there was already intense competition from low-cost road coaches.

From mid-2027, SNCF plans to launch a Bordeaux – Lyon service, routed via Massy-TGV in the Paris suburbs. This has already proved controversial, as sections of the legacy direct route through the Massif Central are in poor condition, although it formally remains open to traffic. Co-operative start-up Railcoop had hoped to operate open access services using this corridor, but failed to raise sufficient funding. 

## Traxtion buys KiwiRail locos

### SOUTH AFRICA

Leasing company Traxtion has announced a R3.4bn investment in 1067 mm gauge locomotives and rolling stock to expand capacity 'aligned' to the reform of South Africa's rail freight sector.


The R1.8bn to be spent on locomotives includes the purchase of 42 partly modernised GE-built U26C locomotives from KiwiRail, along with four fully modernised C30-8Mi locos. Designated DX class in New Zealand, they are being displaced from South Island

operations by new DM class locos from Stadler.

The locos are to be delivered in four tranches between April 2026 and August 2027. Traxtion's Rail Services Hub in Rosslyn will work with Wabtec to upgrade the U26C locos to the C30-MEi specification, with new fuel-efficient 7FDL-EFI engines and Brightstar control systems. The first are expected to roll out in Q3 2026, 'marking the historic entry of Traxtion's trains to South African main line operations'.

Another R1.6bn will be invested in new wagons to be manufactured

domestically by Traxtion's existing suppliers.

Traxtion CEO James Holley explained that the programme had been structured 'to maximise South African industrial value-add, such as local assembly, supplier development and skills transfer, while getting modern locomotives and wagons into service as quickly as possible'. The company said it was the largest private investment in South African rail freight in terms of fleet size and value, and would address about 5% of the national rail freight capacity shortfall. 

## Battery locos delivered


### AUSTRALIA

BHP has taken delivery of its first purpose-built battery-electric heavy haul locomotives for trials between its Pilbara iron ore mines and Port Hedland. Each locomotive has a 7 MWh battery system, which will be charged using power regenerated during braking on the downhill runs.

Wabtec's Regional Senior Vice-President for ANZ&SEA Peter Thomas said the FLXDrive locomotives had been 'purpose-built to perform in one of the world's most demanding environments, combining



advanced battery technology and regenerative braking to deliver high efficiency and lower emissions'.

BHP currently operates a fleet of more than 180 high-horsepower diesel locomotives. It will work with the supplier to assess the performance and emissions reduction capabilities of battery traction in real-world conditions, and has also ordered two EMD Joule battery locos from Progress Rail for assessment. 

## Argos pilot commissioned


### FRANCE

A consortium led by MerMec subsidiary Compagnie des Signaux, working with Eiffage Énergie Systemes and Systra, has commissioned its first ARGOS digital interlocking on the Réding – Saverne pilot line in the Grand Est region.

The ARGOS innovation partnership programme launched

by SNCF Réseau in June 2018 is aimed at developing a new generation of digital interlockings. Three consortia were selected in September 2020 to develop pre-production pilot installations. These were originally formed of Thales/Engie Solutions/Vossloh; Hitachi Rail STS/EES/Systra; and Alstom. However, Hitachi Rail subsequently acquired Thales GTS

and spun off CSEE to MerMec. Hitachi Rail commissioned its pilot interlocking based on Thales technology at Chasse sur Rhône in April (RG 6.25 p16).

According to CSEE, its innovative digital architecture would allow 'real-time communication, high responsiveness to incidents, and reduced impact in case of failure or maintenance'. 'Reinforced' cybersecurity requirements had been integrated from the design stage. 

## Supreme EMU-320 unveiled

### SOUTH KOREA

Quasi-independent high speed operator Supreme Railways has unveiled its first eight-car EMU-320 trainset at Hyundai Rotem's Changwon facility.

The plant is building 17 EMU-320 sets for Korail and 14 for SR under contracts signed in March and April 2023 (RG 9.23 p32). Delivery of the SR sets is scheduled to start from the end of 2026, follow-



ing testing and commissioning.

The new units are expected to operate Super Rapid Train services from Suseo station in Seoul to Busan and Mokpo, and on routes between the capital and Jinju, Yeosu and Pohang, where SR has been running since September 2023.

The operator says it will be able to increase the number of daily seats offered from 52000 to 77000 when all 14 trainsets are in service, helping to address a capacity shortage. 🌐

## Port terminal inaugurated

### FRANCE

SNCF's rolling motorway subsidiary VIIA has formally inaugurated its Autoroute Ferroviaire terminal at the port of Sète, with a ceremony on November 25 attended by SNCF President Jean Castex, the President of Occitanie Carole Delga, Rail Logistics Europe President Frédéric Delorme, Benedicte Colin, Chairman of VIIA and Naviland Cargo, and Philippe Malagola, President of Port de Sète Frontignan.

The 6 ha complex lies alongside the port's existing intermodal terminal opened in 2023. The Modalohr horizontal transfer facilities provide 18 loading spots for the rapid transshipment of 36 semi-trailers at a time. The €20m investment has been funded by VIIA, Occitanie région and Port Sud de France, with a €3m contribution from the national government.

RLE said the port was a key entry point into the EU for cargo coming from Turkey. VIIA introduced a service of three trains per week between Sète and Calais on October 17, noting that this offered Turkish companies 'an important opportunity to deliver their cargo to the north of France, the Benelux region and the Scandinavian countries' as well as the UK. VIIA expects to double the frequency to six trains each way per week from January, and will also provide connections to Bettebourg.

★ Modalis Group and Dunkerque-Port have laid the foundation stone for the €25m Western Port rail-road transshipment terminal, which will be able to accommodate four 750 m long freight trains per day. The open access facility close to the roll-on/roll-off ferry terminals is being developed to link the Channel port to major European industrial centres by rail. 🌐

## Traxx Hauler order

### UKRAINE

Alstom is to supply Ukrzaliznytsia with 55 Traxx Hauler electric freight locomotives tailor-made to local requirements; these are expected to replace 80 older locos, and to reduce operating costs by more than 30% thanks to improved performance, reliability and energy efficiency.

UZ CEO Oleksandr Pertsovskiy said the 'strategic agreement' signed on November 17 in the presence of presidents Zelenskyy and Macron was 'an important step towards solving the critical problem of the outdated traction

fleet', and an 'investment in economic security and the sustainability of our logistics'.

Alstom CEO Henri Poupart-Lafarge said the locomotives would be 'tailored to meet the country's specific infrastructure needs'. The 1520 mm gauge locomotives will have four bogies in a twin Bo-Bo configuration, with a power rating from 7.2 to 9.4 MW and a maximum speed of 120 km/h. They will be able to use both 3 kV DC and 25 kV 50 Hz electrification systems, eliminating the need for trains from industrial areas to ports to change locos on the way.

The €473m contract was awarded following an international tender which attracted more than 10 bids from Europe and Asia. It is being financed through a €300m sovereign-guaranteed loan from EBRD and a €173m grant from the USA administered by the World Bank.

UZ said the selection of a foreign manufacturer reflected the urgent need for modern locos and the use of international funding. The loco will be designed and manufactured at Alstom's Belfort factory in France, but will have Ukrainian-made radio and safety systems. 🌐

## EcoTrain targets very light rail opportunities

### FRANCE

Dynamic testing has started with the lightweight EcoTrain trainset, after the prototype vehicle was unveiled at the Socofer plant in Tours in late November.

Conceived by entrepreneur Philippe Bourguignon and suppliers Socofer, Stratiforme and Clearys in 2019, the 30-seat railcar is designed for use on lightly used lines where operating costs need to be kept to a minimum.

The four-wheeled vehicle is 12.5 m long and 2800 mm wide, with a maximum axleload of 8 tonnes. It is powered by lithium-ion battery powerpacks that offer a range of 500 km between charging. It is able to climb gradients up to 2.5% and has a maximum

operating speed of 70 km/h. The design can also be adapted to carry lightweight freight consignments of up to 2.5 tonnes.

Bourguignon said the lightweight railcar was 'user friendly, frugal and full of technology'; it has been designed for GoA4

driverless operation, and is fitted with GNSS and LiDAR to support low-cost train control functions.

Bourguignon has established EcoTrain SAS to explore potential turnkey contracts to renovate specific lines where the railcars could be deployed. Routes already identified include Agen - Auch, Busseau-sur-Creuse - Felletin and Ascq - Orchies, but he said there were also opportunities elsewhere in Europe, 'notably in Belgium'. 🌐

